

Claims

- 1) A method of assembly using light projection, the method comprising:
positioning at least one light projector in an assembly area where an article is
to be assembled;
- 5 positioning at least one component part of the article in the assembly area;
positioning a photoreactive material near the component part;
causing the light projector to project light onto the photoreactive material and
change an appearance of a portion of the photoreactive material;
performing an assembly operation on the component part at a location on the
10 component part that is near the portion of the photoreactive material.
- 2) The method of Claim 1, further comprising:
using a laser light projector as the light projector.
- 15 3) The method of Claim 1, further comprising:
positioning a plurality of laser light projectors in the assembly area, with the
one light projector being a laser light projector of the plurality of laser light projectors
- 4) The method of Claim 1, further comprising:
20 positioning a plurality of component parts in the assembly area, with the one
component part being one of the plurality of component parts.
- 5) The method of Claim 4, further comprising:
positioning the plurality of component parts near each other.

- 6) The method of Claim 4, further comprising:
positioning the plurality of component parts against each other.
- 5 7) The method of Claim 1, further comprising:
positioning the photoreactive material on the component part.
- 8) The method of Claim 7, further comprising:
positioning the photoreactive material in a tape form on the component part.
- 10 9) The method of Claim 8, further comprising:
removing the photoreactive material from the component part by peeling the
photoreactive material in the tape form from the component part.
- 15 10) The method of Claim 7, further comprising:
positioning the photoreactive material on the component part by spraying the
photoreactive material in a particulate form on the component part.
- 20 11) The method of Claim 10, further comprising:
the particulate form being an atomized liquid.
- 12) The method of Claim 10, further comprising:
removing the photoreactive material from the component part by wiping the
photoreactive material from the component part.

13) The method of Claim 10, further comprising:
the particulate form is a dust.

5 14) The method of Claim 13, further comprising:
removing the photoreactive material from the component part by wiping the
photoreactive material from the component part.

15) The method of Claim 7, further comprising:
10 positioning the photoreactive material on the component part by applying the
photoreactive material in a liquid form to the component part.

16) The method of Claim 15, further comprising:
applying the photoreactive material to the component party by immersing the
15 component part in the photoreactive material.

17) The method of Claim 15, further comprising:
applying the photoreactive material to the component part by wiping the
photoreactive material on the component part.

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18) The method of Claim 15, further comprising:
applying the photoreactive material to the component part by spraying the
photoreactive material on the component part.

19) The method of Claim 15, further comprising:
the liquid form being a clear liquid.

20) The method of Claim 15, further comprising:
the liquid form being a water-based liquid.

21) The method of Claim 7, further comprising:
positioning the photoreactive material on the component part by rubbing the
photoreactive material on the component part.

22) The method of Claim 1, further comprising:
causing the light projector to project light onto the photoreactive material for a
predetermined time period.

23) The method of Claim 1, further comprising:
causing the light projector to project light onto the photoreactive material in a
predetermined pattern of the projected light.

24) The method of Claim 23, further comprising:
the predetermined pattern of the projected light being a continuous pattern.

25) The method of Claim 23, further comprising:
the predetermined pattern of the projected light projecting graphic information.

26) The method of Claim 1, further comprising:

performing the assembly operation of producing a hole in the component part at the location on the component part that is near the portion of the photoreactive material.

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27) The method of Claim 1, further comprising:

performing the assembly operation of attaching a fastener to the component part at the location on the component part that is near the portion of the photoreactive material.

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28) The method of Claim 1, further comprising:

performing the assembly operation of positioning a second component part at the location on the one component part that is near the portion of the photoreactive material.

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29) The method of Claim 1, further comprising:

performing the assembly operation of checking the location of an edge on the component part for proper positioning of the edge relative to the component part.

20 30) The method of Claim 1, further comprising:

performing the assembly operation of checking the location of a fastener on the component part for proper positioning of the fastener relative to the component part.

31) The method of Claim 1, further comprising:

performing the assembly operation of checking the position of a second component part relative to the one component part for proper positioning of the second component part relative to the one component part.

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32) A method of assembling component parts of an article, the method comprising:

positioning at least one component part of the article in an assembly area that is exposed to light emitted from a light projector;

10 positioning a photoreactive material on the component part;

causing the light projector to project light onto the photoreactive material and change an appearance of a portion of the photoreactive material;

performing an assembly operation on the component part at a location on the component part at which the portion of the photoreactive material is positioned.

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33) The method of Claim 31, further comprising:

using a laser light projector as the light projector.

34) The method of Claim 32, further comprising:

20 positioning a plurality of component parts in the assembly area, with the one component part being one of the plurality of component parts.

35) The method of Claim 34, further comprising:

positioning the plurality of component parts against each other.

36) The method of Claim 32, further comprising:
positioning the photoreactive material in a tape form on the component part.

5 37) The method of Claim 36, further comprising:
removing the photoreactive material from the component part by peeling the
photoreactive material in the tape form from the component part.

38) The method of Claim 32, further comprising:
10 positioning the photoreactive material on the component part by spraying the
photoreactive material in a particulate form on the component part.

39) The method of Claim 38, further comprising:
the particulate form being a liquid.

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40) The method of Claim 38, further comprising:
removing the photoreactive material from the component part by wiping the
photoreactive material from the component part.

20 41) The method of Claim 38, further comprising:
the particulate form is a dust.

42) The method of Claim 32, further comprising:

positioning the photoreactive material on the component part by applying the photoreactive material in a liquid form to the component part.

5 43) The method of Claim 42, further comprising:

applying the photoreactive material to the component part by immersing the component part in the photoreactive material.

44) The method of Claim 32, further comprising:

10 applying the photoreactive material to the component part by wiping the photoreactive material on the component part.

45) The method of Claim 32, further comprising:

15 positioning the photoreactive material on the component part by rubbing the photoreactive material on the component part.

46) The method of Claim 32, further comprising:

performing the assembly operation of producing a hole in the component part.

20 47) The method of Claim 32, further comprising:

performing the assembly operation of positioning a second component part at the location on the component part.

48) The method of Claim 32, further comprising:

performing the assembly operation of checking the location of an edge on the component part for proper positioning of the edge relative to the component part.

5 49) The method of Claim 32, further comprising:

performing the assembly operation of checking the position of a second component part relative to the one component part for proper positioning of the second component part relative to the one component part.

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